

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Thomas Osterheld et al.                      Art Unit : Unknown  
Serial No. : Unassigned                                      Examiner : Unknown  
Filed : October 29, 2001  
Title : POLISHING PAD HAVING A GROOVED PATTERN FOR USE IN  
CHEMICAL MECHANICAL POLISHING

Box Patent Application  
Commissioner for Patents  
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Prior to examination, please amend the application as follows:

In the specification:

Please replace the paragraph at page 1, line 6, with the following rewritten paragraph:

--This application is a continuation of pending U.S. Application Serial No. 09/441,633, filed November 16, 1999, which is a divisional of U.S. Application Serial No. 09/003,315, filed January 6, 1998, now issued as U.S. Patent No. 5,984,769, which is continuation-in-part of U.S. Application Serial No. 08/856,948, filed May 15, 1997, now issued as U.S. Patent No. 5,921,855, the entire disclosures of which are incorporated herein by reference.--

In the claims:

Cancel claims 1-42.

Please add claims 43-54.

43. (New) A polishing pad for polishing a substrate in a chemical mechanical polishing system, comprising:

a layer having a thickness between about 0.06 and 0.12 inches, one side of the layer providing a polishing surface and having a plurality of substantially circular grooves formed therein, the grooves having a depth between about 0.02 and 0.05 inches.

44. (New) The polishing pad of claim 43, wherein the grooves have a depth of approximately 0.03 inches.

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45. (New) The polishing pad of claim 43, wherein the grooves have a width between about 0.015 and 0.04 inches.

46. (New) The polishing pad of claim 45, wherein the grooves have a width of approximately 0.02 inches.

47. (New) The polishing pad of claim 43, wherein the grooves have a pitch between about 0.09 and 0.24 inches.

48. (New) The polishing pad of claim 47, wherein the grooves have a pitch of approximately 0.12 inches.

49. (New) The polishing pad of claim 43, wherein the grooves are concentrically arranged.

50. (New) The polishing pad of claim 43, wherein the grooves are uniformly spaced over the polishing surface.

51. (New) The polishing pad of claim 43, wherein the polishing pad further comprises a lower layer on a side of the layer opposite the polishing surface.

52. (New) The polishing pad of claim 51, wherein a distance between a bottom of the grooves and the lower layer is between about 0.035 and 0.085 inches.

53. (New) The polishing pad of claim 52, wherein the distance between a bottom of the grooves and the lower layer is about 0.04 inches.

54. (New) The polishing pad of claim 51, wherein the thickness of the layer of is about 0.07 inches.

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In the abstract:

Replace the abstract with the following version.

--A polishing pad with a layer that provides a polishing surface. The layer has a thickness between about 0.06 and 0.12 inches, and a plurality of substantially circular grooves having a depth between about 0.02 and 0.05 inches are formed in the polishing surface.--

REMARKS

Attached is a marked-up version of the changes being made by the current amendment.

Applicant asks that all claims be examined.

Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 10/29/01

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**Version with markings to show changes made**

In the specification:

The paragraph beginning at page 1, line 6, has been amended as follows:

This application is a continuation of pending U.S. Application Serial No. 09/441,633, filed November 16, 1999, which is a divisional of U.S. Application Serial No. 09/003,315, filed January 6, 1998, now issued as U.S. Patent No. 5,984,769, which is continuation-in-part of U.S. Application Serial No. 08/856,948, filed May 15, 1997, now issued as U.S. Patent No. 5,921,855, the entire disclosures of which [is] are incorporated herein by reference.

In the claims:

Claims 1-42 have been cancelled.

Claims 43-54 have been added as follows:

43. (New) A polishing pad for polishing a substrate in a chemical mechanical polishing system, comprising:

a layer having a thickness between about 0.06 and 0.12 inches, one side of the layer providing a polishing surface and having a plurality of substantially circular grooves formed therein, the grooves having a depth between about 0.02 and 0.05 inches.

44. (New) The polishing pad of claim 43, wherein the grooves have a depth of approximately 0.03 inches.

45. (New) The polishing pad of claim 43, wherein the grooves have a width between about 0.015 and 0.04 inches.

46. (New) The polishing pad of claim 45, wherein the grooves have a width of approximately 0.02 inches.

47. (New) The polishing pad of claim 43, wherein the grooves have a pitch between about 0.09 and 0.24 inches.

48. (New) The polishing pad of claim 47, wherein the grooves have a pitch of approximately 0.12 inches.

49. (New) The polishing pad of claim 43, wherein the grooves are concentrically arranged.

50. (New) The polishing pad of claim 43, wherein the grooves are uniformly spaced over the polishing surface.

51. (New) The polishing pad of claim 43, wherein the polishing pad further comprises a lower layer on a side of the layer opposite the polishing surface.

52. (New) The polishing pad of claim 51, wherein a distance between a bottom of the grooves and the lower layer is between about 0.035 and 0.085 inches.

53. (New) The polishing pad of claim 52, wherein the distance between a bottom of the grooves and the lower layer is about 0.04 inches.

54. (New) The polishing pad of claim 51, wherein the thickness of the layer of is about 0.07 inches.

In the abstract:

Replace the abstract with the following version.

--A polishing pad with a layer that provides a polishing surface. The layer has a thickness between about 0.06 and 0.12 inches, and a plurality of substantially circular grooves having a depth between about 0.02 and 0.05 inches are formed in the polishing surface.--